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AN HISTORICAL NOTE ON THE JAMES-LANGE THEORY OF EMOTION

By E. B. TITCHENER

In his article of 1884, James tells us that his view of emotion derives from self-observation: "fragmentary introspective observations" had "combined into a theory." In the *Psychology* he remarks: "Prof. C. Lange, of Copenhagen, . . . published in 1885 a physiological theory of their [the emotions'] constitution and conditioning, which I had already broached the previous year in an article in *Mind*."¹ Lange, like James, announces this theory as a new discovery. The motive and method of his investigation were, however, different from James'; he worked, in the interest of practical medicine, from the side of objective 'expression.'² He differs from James also in that he refers to earlier writers who have, more or less explicitly, anticipated his theory: Spinoza, Malebranche and Bocalosi are quoted by chapter and verse, Lenhossék and Sibbern are mentioned.³

No one can doubt that James was thoroughly in earnest about his theory, or that he was eager in every legitimate way to recommend it to his readers. It is, therefore, the more surprising that he should not have added to his list of arguments the argument from the history of psychology; that he should not have followed up the clue offered him by Lange, and utilised his own wide reading for the marking down of other, more or less complete 'anticipations' of his doctrine. Even when he quotes Henle, with the remark: "Note how justly this expresses our theory!"—even then he fails to cite Henle's definition of emotion, occurring on the very same page, as "a presentation accompanied by sympathetically excited sensations, muscular movements, and secretions."⁴ We must suppose

¹ W. James, *What Is an Emotion?* *Mind* [O. S.], ix, 1884, 189; *The Principles of Psychology*, ii, 1890, 449. James quotes from the German translation of 1887.

² C. Lange, *Ueber Gemüthsbewegungen*, 1887, 3, 8.—I am not concerned, in this paper, to distinguish between the theories of James and Lange.

³ *Ibid.*, 87, 88 ff., 92.

⁴ *Op. cit.*, ii, 661; F. G. J. Henle, *Anthropologische Vorträge*, i, 1876, 72; cf. 64, 67.

that he had been "surfeited by too much reading of classic works on the subject" before the theory took shape in his mind;⁶ and we must, perhaps, suppose further that, when the theory did take shape, it presented itself as something novel, as something opposed to the manner of the classical works; and that James consequently forgot the various hints that he had received from earlier writers. I return to this point later.

Meantime I offer the following as a partial list of the 'anticipations' above mentioned. Several of them—Aristotle,⁶ Descartes,⁷ Spinoza,⁸ Malebranche,⁹ Lotze,¹⁰ Maudsley,¹¹ Henle,¹²—I have quoted in my *Text-Book of Psychology*. I wish here to add to these bare references only two things: an appreciation of Descartes by Irons, and the translation of a paragraph from Lotze. "*Les passions de l'âme*," says Irons, ". . . will bear comparison with anything that has been produced in recent years. . . . The position maintained is similar to that now held by Professor James, but Descartes does not content himself with defending in a general way the assertion that emotion is caused by physical change. . . . The theory advanced is worked out with a completeness which is not to be found in the modern presentations of the same general point of view."¹³ This is a strong statement; and Irons, though he was a careful writer and weighed his words, has not wholly escaped, in making it, the danger which besets all historical enquiry of this kind: the danger of a too ex-

⁶ *Op. cit.*, ii, 448. It is significant that James here says: "Unfortunately there is little psychological writing about the emotions which is not merely descriptive." This statement seems to represent a generalised impression.

⁶ See W. A. Hammond, *Aristotle's Psychology*, 1902, 6 ff., 211 f.; H. Siebeck, *Geschichte der Psychologie*, I, ii, 1884, 90; G. S. Brett, *A History of Psychology, Ancient and Patristic*, 1912, 138 f.; M. Dessoir, *Outlines of the History of Psychology*, 1912, 24. Cf. also G. L. Duprat, *La psycho-physiologie des passions dans la philosophie ancienne*, *Arch. f. Geschichte d. Philos.*, xviii. (N. F. xi.), 1905, 395 ff.

⁷ R. Descartes, *Les passions de l'âme*, 1649, arts. 27, 29, 33, 36-38, 46, etc.

⁸ B. de Spinoza, *Opera posthuma*, 1677: *Ethic*, trs. 1883 and later, pt. iii.

⁹ N. Malebranche, *De la recherche de la vérité*, 1674-5, trs. 1694, bk. v., ch. iii; cf. bk. ii, ch. iv.

¹⁰ R. H. Lotze, *Medicinische Psychologie oder Physiologie der Seele*, 1852, 518.

¹¹ H. Maudsley, *The Physiology and Pathology of Mind*, 1867: *The Physiology of Mind*, 1876, 348 ff.; *The Pathology of Mind*, 1879, 222.

¹² *Op. cit.*; also *Handbuch der rationellen Pathologie*, 1846, 257; *Handbuch der allgemeinen Anatomie*, 1841, 754.

¹³ D. Irons, Descartes and Modern Theories of Emotion, *Philos. Rev.*, iv, 1895, 291.

PLICIT interpretation. Descartes is, in fact, neither so precise in thought nor so definite in statement as the reader of Irons' paper might be led to suppose.¹⁴ Lotze, on the other hand, is as definite as one could wish. He has been speaking of certain moods of exaltation or excitement aroused by the hearing of music, the reading of poetry, and on a lower level by the movement of the dance; and he proceeds, in rough translation, as follows:

"But even if the prime occasion of such a mood lay in the perception of intellectual harmonies, these sensory feelings, which are generated by the intellectual excitement, supervene upon its original content with a new and peculiar power to color the whole experience; while their arrest just as distinctly checks the development of the intellectual feeling. Our thoughts and desires differ, according as we are standing up or lying down; an unnatural and constrained position damps our courage; a comfortable sprawl is hardly compatible with devotion; all our anger evaporates if the body is unmoved; the hand which smoothes the wrinkles from the forehead brushes away the chagrin of which those wrinkles were the sign. It would be difficult to determine the limits of this influence, but there can be no doubt that its range is exceedingly wide; and it is a question whether our cooler judgment in the sphere of art and morals, or our reflective thought upon the danger or desirableness of some human state, does not depend for its life and intimacy upon this attendant train of sensory feelings, whereby that which is of value for its own sake is set for us in harmonious relation to the innermost conditions of our own individual existence. Our serene enjoyment of beautiful proportions is not simply this abstract pleasure; but in quickened heartbeat, in stronger and easier breathing, in the firm tension of the muscles, we feel our very self uplifted and sustained. Repentance and sorrow for the past are not simply a judgment of moral condemnation, inwardly pronounced and heard only by the soul; the flagging of our limbs, the lessened activity of breathing, the oppression of the breast,—in anger perhaps even the spasmodic contractions of the bronchi, and the choking movement of the oesophagus that makes the food impossible to swallow,—show how the bodily organisation too tries symbolically to throw off a burden of contempt under whose weight it is groaning. Even the feeling of devotion is not a purely intellectual exaltation; with it, all unconsciously, our step takes on a less rapid pace, our movements become slower and more restrained, the body assumes a characteristic attitude, not of relaxation but of self-submissive strength; and all these bodily activities reflect into the soul's consciousness a feeling, which reinforces its intellectual mood."¹⁵

Style apart, these sentences might have been written by James himself,—though Lotze adds much that James would have rejected, and James ranks outright as constitutive the

¹⁴ Cf. T. Böcker, *Die James-Lange'sche Gefühlstheorie in ihrer historischen Entwicklung*, 1911, 7 f.

¹⁵ *Op. cit.*, 517 f. The paragraph occurs also in the art. *Seele und Seelenleben*, in R. Wagner's *Handwörterbuch d. Physiologie*, iii, 1, 1846, 198.

processes which, however great their importance, are yet for Lotze only contributory.

The first author to whom I now wish to call attention is La Mettrie, the earliest and most extreme of the French materialists. In the *Histoire naturelle de l'âme* (1745) La Mettrie outlines a vasomotor theory of emotion which was undoubtedly suggested by that of Malebranche, and which takes us a step nearer in time to the theory of Lange.¹⁶ "Les nerfs qui tiennent les artères . . . paroissent donc, dans la colère et la joie, exciter la circulation du sang artériel, en animant le ressort des artères; dans la crainte et le chagrin . . . les artères resserrées, étranglées, ont peine à faire couler leur sang." In *L'homme machine* (1748) he reminds us rather of James.¹⁷ "Que falloit-il à Canus Julius,¹⁸ à Sénèque, à Pétrone, pour changer leur intrépidité en pusillanimité ou en poltronnerie? Une obstruction dans la rate, dans le foie, un embarras dans la veine porte. Pourquoi? Parce que l'imagination se bouche avec les viscères: et de-là naissent tous ces singuliers phénomènes de l'affection hystérique et hypocondriaque." Here, too, we seem to have an echo of Malebranche.¹⁹

Next I refer to Cabanis, pantheist in philosophy and materialist in psychology, known in every text-book by a single quotation, but less read than his originality deserves. Cabanis may be introduced by a quotation from Lamarck (1809), who, after asserting that "moral feeling may, with time, exert upon the state of our bodily organisation an influence even greater than that which physical feeling is able to exercise," continues in this way:

"Cabanis, noticing that persons who are habitually melancholy and depressed, oftentimes without any real cause, show a practically identical mode of change in the state of their [abdominal] viscera, drew the conclusion that we must ascribe the melancholy of these persons to this mode of change, and that these viscera contribute to the formation of thought. It seems to me that the learned author goes

¹⁶ J. O. de la Mettrie, *Oeuvres philosophiques*, i, 1796, 132 ff., esp. 137.

¹⁷ *Op. cit.*, iii, 120.

¹⁸ F. A. Lange (*Gesch. d. Materialismus*, i, 1908, 340; *Hist. of Materialism*, ii, 1892, 67) reads *Caius Julius*. But what should the great Caesar be doing in this galley? The reference is to that Julius Canus whose story is told by Seneca—and by Montaigne, who also narrates the deaths of Seneca and Petronius. See M. E. de Montaigne, *Essais* [1580], ii, 1862, 147; iii, 233; iv, 115.—Lange's mistake is repeated by G. C. Bussey, *Man a Machine*, 1912, 18, 91.

¹⁹ Namely of bk. ii: so the context indicates. But La Mettrie may be using his own medical observations.

too far. No doubt the changed state of the organs, and especially of the abdominal viscera, often corresponds with the changes of the moral faculties, and even makes a positive contribution to those changes. But it does not at all follow, in my judgment, that this state contributes to the formation of thought; it helps simply to give the individual a leaning, which inclines him to find pleasure in one kind of thoughts rather than in another.

"Since moral feeling, if its influence is prolonged in some particular direction, definitely affects the state of the organs,—and there can be no doubt of this effect,—it appears to me that the recurrence of grounds for irritation, in the experience of a given individual, will have furnished the primary cause of the changes in his abdominal viscera; and that these changes, once they have been set up, will in their turn have established in this individual a leaning toward melancholy, even though there should at the time be no occasion for it.

"Parents may, it is true, transmit a disposition of the organs, that is to say, a state of the viscera fitted to give rise to this or that temperament or leaning, in a word, to this or that character; but it is further necessary that circumstances favor in the children the development of this disposition; otherwise they may acquire another temperament, other leanings, in a word, a different character. It is only in the lower animals, and especially in those which possess but little intelligence, that generation transmits, practically without variation, organisation, leanings, habits, all the various characters of the particular race."²⁰

Lamarck gives no reference; he is writing from general recollection of the contents of the *Rapports du physique et du moral de l'homme* (1798-9—1802). The contribution to thought of the state of the viscera is discussed in Cabanis' first memoir;²¹ the causes of habitual melancholy in the fourth, sixth and twelfth;²² the possibility of transmission in the twelfth;²³ and the status of the lower animals in the second and tenth,²⁴—though Lamarck may be thinking, in particular, of that striking paragraph in the sixth memoir, which reads like the exordium of a modern lecture on eugenics.²⁵ It is

²⁰ J.-B. P. A. de M. de Lamarck, *Philosophie zoologique* [1809], ii, 1873, 267 ff.

²¹ J. J. G. Cabanis, *Rapports du physique et du moral de l'homme*, i, 1824, 55. "Puisqu'ils [les viscères abdominaux] influent directement par leurs désordres sur ceux de la pensée, ils contribuent donc également, et leur concours est nécessaire, dans l'état naturel, à sa formation régulière."

²² *Op. cit.*, i, 240, 242; ii, 121 (*cf.* the summary, ii, 170); iii, 304 f., 308, 320.

²³ *Op. cit.*, iii, 298.

²⁴ *Op. cit.*, i, 103 ff.; iii, 115 ff.

²⁵ *Op. cit.*, ii, 142. "Après nous être occupés si curieusement des moyens de rendre plus belles et meilleures les races des animaux ou des plantes utiles et agréables; après avoir remanié cent fois celle des chevaux et des chiens; après avoir transplanté, greffé, travaillé de toutes les manières, les fruits et les fleurs, combien n'est-il pas honteux de négliger totalement la race de l'homme! Comme si elle nous

clear, at any rate, that he knows his author; and I have quoted him, partly to show how Cabanis' teaching was understood by a contemporary, and partly because Cabanis himself does not, so far as I am acquainted with him, furnish many quotable passages. His whole treatise seems to me to be informed with the spirit of the James-Lange theory; but I do not find it easy to offer a concise proof of this statement. Let us begin, however, with the doctrine of multiple centres.

"There exist in the living body, independently of brain and spinal cord, different centres of sensibility, where impressions are, so to say, collected, like rays of light, either to be reflected straight toward the motor fibres or to be sent in a single bundle to the universal and common centre . . . We find three principal centres (exclusive of brain and spinal cord) . . . namely: (1) the phrenic region, which includes the diaphragm and the stomach . . .; (2) the hypochondriac region, to which belong not only the liver and the spleen, but also all the superior abdominal plexus, a large part of the small intestine, and the great flexure of the colon . . .; and (3) a final secondary centre placed in the organs of generation, and including also the urinary system and that of the lower intestines. . . . The character of our ideas, the direction and even the nature of our emotions, enable us to diagnose the different physical circumstances [of these centres], while these same circumstances enable us to predict with certainty the moral effects which they will produce. . . . The nervous affections whose cause resides in the hypochondriac viscera . . . originate or develop all the emotions of depression and timidity." ²⁶

The phrenic and generative regions also play their part in the origination and development of emotions, but their operation is too complicated for brief quotation.

I give a few more examples of Cabanis' doctrine:

"It is certain that a knowledge of human organisation, and of the modifications that temperament, age, sex, climate, disease may bring about in our physical disposition, throws a brilliant light upon the formation of our ideas; that without this knowledge it is impossible fully to understand how the instruments of thought operate to produce it, and how emotions and volitions develop." ²⁷

"The viscera which this [the abdominal] cavity contains, and especially the liver and the spleen, are liable to obstruction. Hence . . . those emotions which are slower to develop, but which are more profound and more incurable." ²⁸

"We see every day that acute or progressive inflammation of the brain, certain organic dispositions of the stomach, affections of the diaphragm and of the whole epigastric region, produce now an acute

touchait de moins près! comme s'il était plus essentiel d'avoir des boeufs grands et forts que des hommes vigoureux et sains; des pêches bien odorantes, ou des tulipes bien tachetées, que des citoyens sages et bons! . . ."

²⁶ *Op. cit.*, ii, 154 f., 157, 162, 170; cf. i, 242; ii, 121; iii, 320.

²⁷ *Op. cit.*, i, 58; cf. Lamarck's passage, i, 55.

²⁸ *Op. cit.*, i, 240.

or transitory frenzy or delirium, now chronic mania or insanity. . . . It is not only the nature or order of ideas that changes in the various deliria; tastes, leanings, emotions, change at the same time. . . . Ideas and emotions take shape in virtue of the impressions received by the external organs of sense, and by the aid of those which are adequate to the most sensitive internal organs. It is proved by overt facts that these latter impressions may greatly modify all the operations of the brain."²⁹

"Extraordinary irritations of the organs of generation may arouse in turn, according to the previous state of the system and their own degree of intensity, the disposition of the sanguine, of the bilious, and of the melancholic. . . . In general, to influence temperament, a disease must be able to assist in the production of constant dispositions of the organs."³⁰

"In purely inflammatory phthisis, as soon as the slow fever is well established, the patient seems to experience a pleasurable agitation of the whole nervous system; he is full of cheerful ideas and chimerical hopes. . . . In phthisis caused by hypochondriac engorgement or by stomachic affection, the ideas entertained by the patient are, on the contrary, always gloomy and despondent."³¹

"In the animal system there may exist from the first, or may take shape as a consequence of habits of living, a larger or smaller number of those nervous centres which, although connected with and subordinated to the common centre, have their own mode of perception, exert their own kind of influence, and often remain isolated in their respective spheres whether as regards impressions received or as regards movements carried out."³²

I can hardly hope that these extracts will prove convincing. Cabanis is apt to moralise when we should wish him to be concrete; he is interested in medicine rather than in psychology; and he is concerned with the larger problem of temperament, not with the transitory emotion. I repeat, nevertheless, that his work is permeated with the spirit of the James-Lange theory; its keynote is struck by Tracy in the sentence: "Aux différences et aux modifications des organes correspondent constamment des différences et des modifications dans les idées et les passions."³³

Tracy himself has little to say of emotion, but that little is distinctly to our purpose.

"[Consider now] the impressions that we experience when we feel tired or fresh, dull or anxious, sad or gay. I know that you will be

²⁹ *Op. cit.*, ii, 151-154; cf. iii, 304.

³⁰ *Op. cit.*, iii, 308 f.

³¹ *Op. cit.*, iii, 57.

³² *Op. cit.*, iii, 186 f.

³³ *Op. cit.*, i, Extrait raisonné fait par le sénateur Destutt-Tracy, xxxvii.—My reading of Cabanis is confirmed by the editor of the 1859 edition of Bichat's *Recherches* (see Note 35 below): "Bichat n'hésite pas . . . à placer les passions et les expressions sentimentales dans la domaine de la vie organique. Il ne fit toutefois qu'adopter à ce sujet la doctrine que Cabanis avait développée dans ses mémoires

surprised at my placing states like these among the simple sensations,—especially the three last, which you will incline to regard rather as highly complex effects of the various ideas which are occupying the mind, and therefore as manifoldly compounded thoughts or feelings. And yet, just as we often feel tired and heavy without having gone through any considerable exertion, or experience a feeling of cheerfulness and well-being without having taken a prolonged rest, so it cannot be denied that we very often feel an unmotivated anxiety, gaiety or depression. . . . The state of hilarity caused by a piece of good news and by a few glasses of wine, is it not one and the same? Is there any difference between the anxiety of fever and that of mental disquiet? Is it not easy to confuse the languor of indigestion with that of grief? Personally I know that I have often been unable to decide whether a depressed state of mind was due to depressing circumstances or to a disturbance of digestion. For that matter, even when these feelings are the result of our thoughts, they are none the less simple affections; . . . they are real products of pure sensibility; . . . in a word, they are true internal sensations. . . . The same thing holds of all the emotions, save that emotions properly so called always include a desire. . . . But the pleasant or painful state of the man who loves or hates a fellow man is a true internal sensation. *Je crois que tout ceci est entendu.*"³⁴

In the year before Tracy's work appeared, Bichat—anatomist, physiologist, physician, "founder of scientific histology and pathological anatomy"—had already given to the world his epoch-making *Recherches physiologiques sur la vie et la mort* (1800). Here, fifty years before Lotze, is to be found an anticipation of the James-Lange theory every whit as definite as that which we have quoted from the *Medicinische Psychologie*. I cannot repeat everything that Bichat says; but I give a sample; and, for the rest, the book is easily accessible.

"Whatever relates to the understanding belongs to the animal life; . . . whatever relates to the passions belongs to the organic life. . . . The senses . . . act as simple conductors only, and have nothing in common with the affections, which they produce. . . . The brain is never affected by the passions; their seat is in the organs of the internal life. . . . It is astonishing . . . that the passions should have neither their end, nor beginning in the organs of this [animal] life, but on the contrary, that the parts which serve for the internal functions, should be constantly affected by them, and even occasion them according to the state in which they are found. Such notwithstanding is the result of the strictest observation.

" . . . The effect of every kind of passion is at all times to produce some change in the organic life. [Consider anger, joy, terror, sorrow, and their bodily correlates.] The functions of the circulation, of digestion, respiration and secretion, are those which are most directly under the influence of the passions. . . . And not only do the pas-

sur les *Rapports du physique et du moral*" (300). But Bichat's addiction to the James-Lange theory is beyond dispute.

³⁴ A. L. C. Destutt de Tracy, *Éléments d'idéologie: idéologie proprement dite* [1801], 1826, 26 ff.

sions essentially influence the organic functions, in affecting their respective viscera, but the state of these viscera, their lesions, the variation of their forces concur in a decided way to the production of the passions themselves. . . . In this way everything tends to prove that the organic life is the term, in which the passions end, and the centre from whence they originate. . . .

"The passions modify the actions of the animal life though seated in the organic life. . . . The most numerous sympathies exist between the internal viscera, and the brain or its different parts."

"There does not exist for the passions as there does for the sensations a fixed and constant centre; on the contrary the liver, the lungs, the spleen, the stomach, and the heart, are turn by turn affected."³⁵

These sentences speak for themselves. It may be worth remarking, in connection with them, that Buffon, the famous author of the *Histoire naturelle*,—to which Bichat is heavily indebted,—makes the diaphragm the seat of the emotions. The claims of the brain are explicitly rejected; the diaphragm has the advantage both by its sensitiveness and by its position in regard to the internal organs of the body. An appeal is also taken to introspection:

"Pour peu qu'on s'examine, on s'apercevra aisément que toutes les affections intimes, les émotions vives, les épanouissements de plaisir, les saisissements, les douleurs, les nausées, les défaillances, toutes les impressions fortes des sensations devenues agréables ou désagréables, se font sentir au dedans du corps, à la région même du diaphragme."³⁶

³⁵ M. F. X. Bichat, *Physiological Researches on Life and Death*, trs. F. Gold, 1827, 54-74. I owe this reference to Professor J. W. Baird, of Clark University.—In a note to p. 57 F. Magendie takes the 'orthodox' view. "Does not everything lead us to believe that anger exists before the agitation of the heart, and that this is the effect of it and not the cause?" Bichat is also criticised by M. J. P. Flourens (*De la vie et de l'intelligence*, ii, 1858, 33 ff., 134 ff.), on the ground that it is necessary to distinguish between the seat of the passions and the parts of the body which they affect.

³⁶ G. L. L. de Buffon, *Oeuvres complètes*, xviii. (*Histoire des mam-mifères*, 3), 1824, 394, 396; cf. the account of Sympathy, 390 f. The volume was originally published between 1754 and 1767; I have not been able, with the bibliographical means at my disposal, to date it more exactly. Flourens sharply criticises Buffon's views of the brain (*op. cit.*, 141 ff.), but has failed to see (or at any rate to note: 32 ff.) this possible source of Bichat's theory. Readers of Buffon do not need to be told that he makes no effort to be consistent. It would be difficult to reconcile the passage here quoted with certain parts, e. g. of the *Discours sur la nature des animaux* (xvi, 1 ff.). The important thing in the present connection is simply that the passage was written.

Bussey (*op. cit.*, 189) quotes in another connection a sentence from Holbach, which wears the look of the James-Lange theory: "The passions are ways of being or modifications of the internal organs." Holbach says, however, that they are "states or modifications of the internal organ," i. e., of the brain ([P. H. D. von Holbach] *Système*

La Mettrie had an immense influence upon later writers, but is hardly ever quoted; Bichat had a wide influence, and gets his acknowledgments. One of his followers, Dufour, takes up in 1833 a question which had greatly perplexed Magendie. "Bichat seems to say that the perceptions, which produce in us the passions, go directly and without the intervention of the brain, from the senses to the organs which he supposes to be affected by them. We cannot believe that such was his idea"; so writes Magendie, who proceeds to rationalise the whole process in his own way. Dufour, like Bichat, is a strong advocate of the James-Lange theory.

"Our natural tendency to emotion does not take its source at all in our mind; it proceeds from the disposition of the visceral nervous system, which reports to the brain the excitation which it has thus received. . . . The difference [between emotions] springs from the special mode of vital function of our viscera or systems of abdominal organs, whose functions they in their turn enhance or abate. . . . The mind takes part in our emotions only subsequently to the nervous visceral disturbance which constitutes them; and the activity or inertia which they induce upon our organic functions exists before the mind takes cognisance of it."³⁷

In a word, the brain is the centre of the intellectual, and the solar plexus the centre of the animal life.³⁸ But what, then, of Magendie's difficulty? Well, an impression (say, of sight) sends its excitation to the brain, and the brain's reaction "se fait sentir" at the same time upon the visceral system. The viscera react, in their turn and by way of pleasure-pain, upon the brain. What the mind takes cognisance of is this "double perception," of presented object and of emotive back-throw; and oftentimes the disturbance by presentation is so slight that the emotion comes without our knowing precisely what set it up.³⁹

So far the viscera have had things their own way; they are the source of emotion, and their reaction upon the brain further influences the train of ideas and may determine action.⁴⁰ Now, however, Dufour turns to the counter-influence of brain or mind upon viscera or emotion. The finer or subtler emo-

de la nature, etc., 1770, 115). There are passages of Holbach that anticipate Cabanis (121 ff., 154), but I find no anticipation of James and Lange: cf. 116, 146.

³⁷ P. Dufour. *Essai sur l'étude de l'homme, considéré sous le double point de vue, de la vie animale et de la vie intellectuelle*, ii, 1833, 388, 370, 389.

³⁸ *Op. cit.*, 392.

³⁹ *Op. cit.*, 394.

⁴⁰ *Op. cit.*, 401 f.

tions actually derive from the mind, and the mind is able in any case to 'repress or favor' a nascent emotion.⁴¹

Blaud, a contemporary of Dufour's, offers a definition of emotion that is very like Henle's; an emotion consists of "affective perceptions or affective ideas, accompanied by a sensation."⁴²

"[We have in emotion] perceptions or ideas accompanied by a reaction of the brain upon some organ, more or less remote, and in general upon the epigastric viscera; a reaction which brings about in these viscera a perceptible modification, whence results secondarily a sensation of pain or of pleasure. . . . An emotion is the perception, pleasurable or painful, of an organic modification rapidly developed as the result of some impression made upon the senses, . . . or produced by some idea present to the mind or evoked by memory. . . . [There are] always [in emotion] these four constitutive elements: idea, reaction of the brain, modification of the vital organs, and pleasurable or painful sensation of this modification."⁴³

We are again on the ground of the James-Lange theory. Blaud, however, is insistent that there is in man an "intelligent being," that man is constituted by a "spiritual principle";⁴⁴ and he therefore gives the primacy, in every case, to the mind or brain.⁴⁵ The "internal modification" which follows upon the conception of an idea "cannot be considered as cause of the movements of the mind; it is only their effect."⁴⁶ We may consequently have expression without emotion:

"We can express, at will, all the emotions of which we are susceptible, without experiencing them. . . . That is the talent of the actor on the stage."⁴⁷

And while expression may react on emotion, by way of reinforcement, it may also serve to externalise emotion and so

⁴¹ *Op. cit.*, 407 ff., 420 f., 427 ff., 446.

⁴² P. Blaud, *Traité élémentaire de physiologie philosophique*, etc., i., 1830, 178.—I owe the reference to Blaud to a note in E. Boutroux, *William James*, 1912, 34. I have not seen the article by Nayrac there mentioned.

⁴³ *Op. cit.*, i, 322, 178; ii, 164. Blaud is fond of repeating these definitions: *cf.* i, 178 ("une ou plusieurs perceptions, une ou plusieurs idées, produisant, par l'intermédiaire du système nerveux, une modification organique perceptible, qui donne lieu à une sensation de douleur ou de plaisir"); ii, 164 ("une ou plusieurs idées avec affection organique perçue"); ii, 227 f.

⁴⁴ *Op. cit.*, i, viii f.

⁴⁵ Only in one passage do I find the suggestion of a limitation. "La perception de cette modification [organique], qui constitue seule le sentiment qui en est la suite, ne lui [to the brain] appartient point": i, 334.

⁴⁶ *Op. cit.*, i, 182 f.

⁴⁷ *Op. cit.*, i, 223. *Cf.* Plato, *Republic*, iii, 395.

to relieve it.⁴⁸ Finally, there is no bodily seat of emotion: if there were, the same emotion would have several different seats, and might even occupy several organs at the same time, "which is absurd."⁴⁹

Twenty years later, another French medical writer, Béraud (1853),—strongly influenced by Cabanis and Bichat,—ascribes the emotions to a reaction of the visceral organs upon the brain.

"Simple changes in the state of the organs may bring it about that we are more or less disposed to emotions, to joy or depression or desire, by reason of the communication of the viscera, through the intermediation of the great sympathetic, with the part of the brain which presides over the instincts. An emotion like . . . anger, which would be impossible or infrequent if a man were fasting, becomes possible as a result of the modifications produced in the state of the brain by wine; the condition into which it throws the viscera being transmitted to the brain, it predisposes that organ to an emotion. . . . [So scientific men were brought] to believe that the seat of instinctive actions, of feelings and emotions, was in the various peripheral organs; they had not thought of the parts of the brain which the great sympathetic sets in relation to these viscera. . . . The affective life thus dominates and coördinates our entire existence, by interrelating the different parts of the brain and connecting these again with the internal viscera."⁵⁰

The works of Dufour, Blaud and Béraud are, no doubt, of minor importance; but they indicate a trend; and I suspect that there are a good many other books of the same sort which discuss emotion, pro and con, in like terms. A view conceived in the spirit of the James-Lange theory was, in fact, traditional in French physiology. But there are signs of it in Germany as well. I refer, first, to Volkmann's *Lehrbuch der Psychologie* (1856); and I am glad of an occasion for mentioning it and its author. Volkmann's work can never be for us what it was for the psychologists of James' generation, text-book, source-book, bibliography, all in one; but it is still one of the great books in psychology; it is still indispensable if one would attain a clear psychological perspective.

After a descriptive account of emotion, in which full justice is done to the *somatische Resonanz* (*somatischer Nachklang*, *somatische Rückwirkung*),⁵¹ Volkmann writes:

⁴⁸ *Op. cit.*, i, 221 f.; ii, 303 (effect of clothes); ii, 216.

⁴⁹ *Op. cit.*, ii, 166 f.

⁵⁰ B. J. Béraud. *Éléments [Manuel] de physiologie de l'homme*, etc. [1853], ii, 1857, 623 f., 627. Béraud is in general concerned rather with the instincts than with the emotions.

⁵¹ This was, of course, a feature of the Herbartian doctrine of emotion. See, e. g., J. F. Herbart, *Sämmtliche Werke*, v, 1886, 77

"In general, everything that excites or depresses the somatic life serves also to introduce, to intensify, to lengthen, the homologous emotions. Gout has always had a bad name for irritability. Chlorosis and a tendency to feverishness dispose to worry and anxiety. Hunger, cold, restraint of movement, dispirit and deject the mind. . . . Violent gesticulation, loud talk, violent walking to and fro, enhance and sustain anger: Kant advised that, if one would quiet the emotion of a visitor, one should above all induce him to take a seat. You may often get a gentle reminder of an emotion simply by imitating its bodily show; and the sculptors of antiquity were taught to put themselves in the posture of the particular emotion which they wished to represent. The story is told of A. Caracci that the painting of emotional situations always induced emotion in the artist himself; 'the hand which smoothes the wrinkles from the forehead,' says Lotze, 'brushes away the chagrin of which those wrinkles were the sign.'"⁵²

And so he goes on to the counter-influence of emotion upon body.

I have next to quote a few sentences from another book of first-rate importance, Lange's *History of Materialism* (1866). They occur in the chapter on Scientific Psychology:

"Descartes in his much-too-little regarded treatise on the emotions had already entered on the way of defining and explaining them by their corporeal symptoms. . . . In more recent times, Domrich in particular has the merit of treating thoroughly the corporeal phenomena by which psychical conditions are accompanied, but his work has been little used by the psychologists. It would necessarily be otherwise, if it were but generally seen in how high a degree the consciousness of our own emotions is only determined and brought about by the sensation of their corporeal reactions. Yet it is, in fact, with them just as it is with the consciousness of our bodily movements; an immediate knowledge of the impulse set up is indeed present, but we only attain to perfect clearness as to the phenomenon

(Lehrbuch, § 106); x, 1891, 385 (Briefe über die Anwendung der Psych., 10); M. W. Drobisch, *Empir. Psychol.*, 1842, 208. T. Waitz goes farthest towards the James-Lange theory. In speaking of Sympathy he remarks: "Das Anschauen fremden Leidens, des physischen wie des psychischen, verursacht eine Nervenaffection von ganz eigenenthümlicher Art. Es bleibt nicht bei dem blossen Vorstellungsbilde, sondern dieses verursacht einen organischen Reiz.": *Lehrbuch der Psychologie als Naturwissenschaft*, 1849, 398; the whole passage, 396 ff., should be read in connection with 284 ff., 473 ff. ("die äusseren Zeichen an welchen sie [die Affecte] kenntlich werden und ihre Erklärung gehören in die Physiologie": 480). Cf. *Grundlegung der Psych.*, 1846, 201 f., etc.

⁵² W. Volkmann Ritter von Volkmar, *Lehrbuch der Psychologie vom Standpunkte des Realismus und nach genetischer Methode*, ii, 1885, 389 ff., esp. 393; cf. 381 f., and T. Whittaker, *Mind* [O. S.], xv, 1890, 505, 508. A fourth edition of Volkmann's book appeared in 1894, so that it has kept its place in the sun for forty years,—no small achievement for a textbook!

through the backward rush of the sensations, which are occasioned by the movement."⁵³

The Domrich here mentioned was a professor of medicine at Jena, who, in 1849, published a work entitled *Die psychischen Zustände, ihre organische Vermittelung, und ihre Wirkung in Erzeugung körperlicher Krankheiten*. The book, which seems to have been unknown to Darwin, contains a careful and detailed account of the 'expression' of emotions. Domrich gives the primacy to mind; he speaks of the "bodily changes caused by the emotions," of their "reaction upon the body";⁵⁴ but he is never tired of calling attention to the 'feelings' set up by these reactive influences, and of their enhancement of what James named the "general seizure of excitement."⁵⁵ Even in the cases of laughing and blushing he emphasises the 'feels' of tickling and of warmth; and the unmotivated emotions are ascribed roundly to modifications of bodily organs.⁵⁶ I translate a few characteristic sentences:

"These reflected bodily feelings have a far higher importance, for our whole psychical life, than is ordinarily believed. Many of the most attractive and most repulsive of our emotive traits (*Zustände unseres Gemüthes*) owe to them their origin, their continuance, and their characteristic coloring."

"The activity of this or that region of the body is also increased, diminished, transformed. Such regions constitute the sounding board (*Resonanzboden*), which now echoes but faintly in sympathetic vibration, now is thrown into violent oscillatory motion which contributes essentially to enhance the emotion itself."

"We see . . . movement made onerous, the force of the muscles decreased, the feeling of self diminished, circulation, heartbeat and secretion modified; and, from all this, aggregate feelings of depression, oppression, heaviness, feelings of general despondency and of inner anxiety flow back to consciousness. . . These phenomena recur in all the really sorrowful emotions, and give them their peculiar cast."

"Many affections of the heart produce, without any moral reason for the emotion, such disturbance of mind and such uneasiness of

⁵³ F. A. Lange, *Geschichte des Materialismus, etc.*, ii, 1908, 393; trs., iii, 1892, 183 f.

⁵⁴ O. Domrich, *op. cit.*, vi, 207 ff.

⁵⁵ *Psych. Rev.*, i, 1894, 523.

⁵⁶ *Op. cit.*, 239: "Dem Lachen geht gewöhnlich die Empfindung eines eigenthümlichen Allgemeingefühls vorher, welches man *Lachkitzel* nennt. Wir localisiren es in die Gegend des Zwerchfelles, woraus aber noch nicht folgt, dass es auch dort entstehe";—287: "In dem Augenblicke, wo das Schamgefühl entsteht, bemerkt man die Empfindung einer heissen Wärme, von welcher man kaum sagen kann, wo sie am stärksten ist. Wir fühlen sie im Gesicht, am Hals, in der Brust, hier leicht mit einem anderweitigen Gefühle verbunden." Cf. 15, 140, 164, 191 ff. (here Domrich quotes Lotze), 195, 220, 291, 296, 312 f., 322, etc.

conscience that the torture of the feelings thus occasioned is every bit as afflicting. There is, in fact, no feeling of anxiety without alteration of this bodily organ."⁵⁷

Domrich, then, even if he is not a 'materialist' of the stripe of Bichat, nevertheless deserves a place among the partial anticipators of the James-Lange theory. He refers to Bichat, as maintaining that the source of the emotions is to be found in the organs of chest and abdomen; and with Bichat, in a matter-of-course way, he brackets Nasse.⁵⁸ This Nasse—a psychiatrist, and professor in the University of Bonn—was an indefatigable contributor to the medical journals of his time. In 1850 he published a volume entitled *Vermischte Schriften psychologischen und physiologischen Inhalts*, in which his principal papers were brought together. I have not been able to procure the book, nor have I had access to the article which Domrich evidently had in mind: the following quotations from other articles, however, may be taken as an indication of Nasse's position.

"Since the abdominal organs and the heart exert, in the state of health, a considerable influence upon affective disposition, it may easily happen that, if their activity is in some way deranged, they give occasion, through their connection with the brain, to . . . irregularities of mental function."

"Improved circulation of the blood and improvement in the state of the abdominal organs may change the affective disposition . . . into its opposite."

"Affective disturbance proceeding from the heart is especially apt to induce despondency; that from the spleen is frequently connected with melancholy; a high degree of anxiety is often accompanied by pathological conditions of the intestine; suppression of the cutaneous activity sometimes, at any rate, brings with it an affective disposition of fearfulness and timidity."

"The bodily functions that we may bring into causal relation with the origination and continuance of affective disorder are those . . . which in the state of health exercise a decisive influence upon the affective states. Heart, abdominal organs, skin, and in connection with all of these the blood, may be mentioned in particular."⁵⁹

I have not been able to consult the works of Lenhossék and Sibbern.⁶⁰ I must therefore pass over these authors; and I

⁵⁷ *Op. cit.*, 131, 201, 299, 324; cf. 227, 228, 232, 235 f., etc.

⁵⁸ *Op. cit.*, 211.

⁵⁹ F. Nasse, Die Wichtigkeit der Beachtung von anhaltenden Gemüthsleiden zur Verhütung von Seelen-Krankheiten, *Rheinische Monatsschrift für praktische Aerzte*, i, 1847, 660, 661; Zur Unterscheidung der Gemüths-Krankheiten von anderen Krankheiten und unter sich, *ibid.*, 730; Die Gemüthskrankheiten, *Allgemeine Zeitschrift f. Psychiatrie*, etc., iv, 1847, 555.

⁶⁰ The works are: M. von Lenhossék, *Untersuchungen über Leiden-schaften und Gemüthsaffecte, als Ursachen und Heilmittel der Krank-*

conclude by translating the excerpt from Bocalosi. The first part of it (I have not seen the original) is not very clear:

"I call 'passion' of a body that sort of tendency and disposition which the component parts possess; and every body, regarded as a whole, has some kind of movement and action, depending upon an extrinsic cause; so that the particular action is the necessary effect of the particular cause."

"If this is the true definition of 'passions' in general, we now obtain a clear idea of the word 'passion'; and it appears as a result that the nature, the diversity, and the greater or less energy of a man's passions must depend upon his particular organisation, upon the structure of his nerves, of his vessels, and upon the constitution and equilibrium of his humors. So that, to speak strictly, the passions are in the organs of a man, and not in his mind, and so their good and bad qualities must depend upon the make-up of the whole organic system, while the mind seems to be merely an attribute of this system or, if you prefer, is conditioned in its action upon the nature and constitution of the organ."⁶¹

We now return to the authors of the James-Lange theory. Lange, as we have seen, read the classical psychologists for anticipations of his theory, and found relevant passages in Spinoza and Malebranche. He missed the point of the *Passions de l'âme*,⁶² and he appears not to have read as far down the centuries as Lotze. It is strange that he makes no reference to the French physiologists,—the more so, as he mentions Lenhossék; but we may suppose that he was definitely in search of his "vasomotor function," and thought it fruitless

heiten, 1804; *Darstellung des menschlichen Gemüthes in seinen Beziehungen zum geistigen und leiblichen Leben*, 1824-5, 1834; and F. C. Sibbern, *Menneskets aandelige Natur og Vaesen*, etc., 1819-28, re-edited as *Psychologie*, etc., 1843, 1849, 1856, 1862; *Om Forholdet mellem Sjael og Legeme*, 1849. Lenhossék (1773-1840) was professor of physiology at Pesth and Vienna; Sibbern (1785-1859) was professor of philosophy at Copenhagen.

⁶¹ Lange's citation is: G. Bocalosi, *Della fisionomia, principii derivati dall'anatomia, dalla fisiologia, e dinamica del corpo umano per mezzo de' quali si distinguono gli aristocratici, ed i realisti dai democratici*, 5th ed., Milan, year VI. of the republic (1797-8), 20 f. The passage is noteworthy, as showing what sort of statement Lange was disposed to consider anticipatory of his own view. It is worth remembering, in the same connection, that James unhesitatingly identifies his own and Lange's theories, whereas the resemblance is not mentioned, *e. g.*, in the editorial notice of Lange's book, *Mind* [O. S.], xiii, 1888, 304 f.—I have been unable to secure any bibliographical data in regard to Bocalosi, except that he was the author of works on *Democratic Education* and on *The Heart*.

⁶² James (Note 5, above) finds in the classical psychologists "little which is not merely descriptive" of the emotions. Lange, oddly enough, finds in the definitions of the older psychologists little that is not "purely causal" (*op. cit.*, 82). So much depends on the attitude of the reader!

to examine scientific works of an age to which this "decisive physiological fact" was unknown.⁶³ The Bocalosi was, perhaps, the happy find of some half-hour in a library. Lange seems, however, to have composed his book in the orthodox scientific way; he made a conscientious effort to 'get up his literature,' as the phrase goes, before he proceeded to publication.

James' case is far more perplexing. We have remarked that James, in his chapter on The Emotions, mentions none of all the authors quoted in these pages, with the single exception of Henle; and the reference to Henle is, if I may so express it, just off the point of the James-Lange theory. Yet elsewhere in the *Principles* James refers to Malebranche, Lamarck, Tracy, Lotze, Maudsley, Volkmann, F. A. Lange,—refers, I mean, to those particular books from which I have been quoting. The finding of these names is, perhaps, not much more than an accident, since foot-notes and allusions give a very inadequate idea of the reading which precedes composition, and James has warned us that his bibliographies are "quite unsystematic"; but then it might be only chance, again, that has withheld the names of La Mettrie, Cabanis, Bichat. Could one, in fact, read the *History of Materialism* without becoming interested in La Mettrie? and would not that interest send one further to Cabanis?

The evidence must be indirect: but on one point, at any rate, I judge that James stopped short with F. A. Lange. "The phosphorus philosophers," he says (i., 102), "have often compared thought to a secretion. 'The brain secretes thought, as the kidneys secrete urine, or as the liver secretes bile,' are phrases which one sometimes hears." It will, I think, be agreed by all who know the *History of Materialism* that these sentences are an echo of Lange, who is speaking primarily of course of Moleschott and Vogt, but who also brings Cabanis into the group. Had James gone to the originals, he could hardly have written his critical paragraph as it now stands.⁶⁴ Cabanis, at all events, would have been

⁶³ *Op. cit.*, 87.

⁶⁴ Lange, *op. cit.*, ii, 1908, 134, 288; trs., ii, 1892, 242, 312. The devil is rarely so black as he is painted: and the comparison of thought, as secretion of the brain, with bile, the secretion of the liver, seems to have originated, not with the materialists, but with a critic of materialism! It occurs for the first time, so far as search has gone, in a letter addressed to Voltaire (1775), in which Frederick the Great is scornfully jesting at materialism: see G. Berthold, *Monatsberichte d. k. preuss. Akad. d. Wiss. zu Berlin*, December 1877, 765 ff.

perfectly content, in principle, with the admission that "the brain is the one immediate bodily condition of the mental operations," and that "the spiritualist and the associationist must both be 'cerebralists.'" ⁶⁵

If, then, James was satisfied in this instance with a secondary source, so may he have been also in other instances. There can be no doubt that he was temperamentally averse from materialism. He disapproved of anything in philosophy that was clear-cut, simple, dogmatic; but of the two simples and the two dogmatics he seems certainly to have preferred spiritualism. "Let not this view [of emotion] be called materialistic!" he exclaims in the *Principles*, and repeats the exclamation in the *Textbook*—where it reads a little curiously after the introductory statement that "at present Psychology is on the materialistic tack" and the formal adoption of that standpoint as the author's working hypothesis.⁶⁶ Why should the theory be called materialistic, any more than the view that "our entire feeling of spiritual activity . . . is really a feeling of

The passage in Cabanis will be found *op. cit.*, i, 182a, 124 ff. It ends with the statement "que le cerveau digère, en quelque sorte, les impressions; qu'il fait organiquement la sécrétion de la pensée." But the functions of the brain, in the same passage, are "de percevoir chaque impression particulière, d'y attacher des signes, de combiner les différentes impressions, de les comparer entre elles, d'en tirer des jugements et des déterminations,"—something very different from secretion! In fact, the analogy for Cabanis is simply that of functional specialisation, and by no means that of chemical manufacture. A fair translation of the final sentence would run: "We conclude . . . that the brain, so to put it, 'digests' its impressions; that it is an organ for the 'secretion' of thought."

C. Vogt's famous remark "dass alle jene Fähigkeiten, die wir unter dem Namen Seelenthätigkeiten begreifen, nur Functionen des Gehirns sind, oder, um mich hier einigermaßen grob auszudrücken, dass die Gedanken etwa in demselben Verhältnisse zum Gehirne stehen, wie die Galle zu der Leber oder der Urin zu den Nieren" (*Physiologische Briefe für Gebildete aller Stände*, 1847, 206) is less carefully safeguarded; but here too it seems to be functional specialisation that is in point. Cf. *Köhlerglaube und Wissenschaft*, 1855, 33: "Den Beweis, den ich zur Widerlegung meiner Sätze verlangen kann: dass es eine vom Körper unabhängige Seele gebe; dass diese Seele nach dem Tode des Körpers fortleben könne; dass die Seelenthätigkeiten nicht lediglich Functionen des Gehirnes sind—diesen Beweis haben weder Herr. R. Wagner noch Herr Lotze geliefert."

I may perhaps be allowed to add here the references to the phrase "Ohne Phosphor kein Gedanke." See J. Moleschott, *Lehre der Nahrungsmittel, für das Volk*, 1850, 115 f.; *Der Kreislauf des Lebens*, 1852, 365 ff.; 1855, 376 ff.; 1857, 395 ff.

⁶⁵ *Principles*, i, 4. Cf. *Text-book*, 5 f.

⁶⁶ *Principles*, ii, 453; *Text-book*, 6 f., 380. The reference to materialism does not occur in the article of 1884.

bodily activities"?⁶⁷ And if it were materialistic, what harm, seeing that psychology is to be presented throughout from the 'positivistic' or 'natural science' or 'physiological' point of view? Only a temperamental aversion, brought to explicit speech by criticism, can explain the denial.⁶⁸

There are, again, a number of passages in which James' reasoning shows a close correspondence with that of his predecessors. Since James would not have borrowed without acknowledgment, even where he felt to the earlier writer only the vaguest and most general indebtedness, it is clear that he was not consciously borrowing in these cases of definite argument. Consider, for example, the question that Magendie asks in reference to Bichat, and the reply that Dufour gives to it; and then note how James deals with the same problem in his article of 1884:

"An object falls on a sense-organ and is apperceived by the appropriate cortical centre; or else the latter, excited in some other way, gives rise to an idea of the same object. Quick as a flash, the reflex currents pass down through their pre-ordained channels, alter the condition of muscle, skin and viscus; and these alterations, apperceived like the original object, in as many specific portions of the cortex, combine with it in consciousness and transform it from an object-simply-apprehended into an object-emotionally-felt."⁶⁹

Could the parallel be closer? It is true that some such explanation as is here offered follows, naturally enough, from the main idea of the theory; and it is true that one swallow does not make a spring. But there are other parallels as well, some of them clearly indicated in the quotations that I have printed. James makes no references backward; he works out his arguments for himself; the one possible inference is that he was unaware of their earlier formulation.

But when these things have been said, there still remain the list of books that we know James to have read, and the immensely longer list that must lie behind. It is, to be sure, one thing to read a book through, and another thing to skim its pages in the quest of some special statement; and much of the scholar's reading is of the latter sort. Even so, however, the reader is not wholly constrained by his particular

⁶⁷ *Principles*, i, 301 f. James here proposes to "dally with this hypothesis for a while"; nothing is said about materialism. In *Text-book*, 181, however, the hypothesis does not appear; and the introductory passage, 5 ff., despite the definiteness of its section-headings, is still distinctly apologetic in tone.

⁶⁸ If the criticism was printed, I have missed it; but the charge might have been made in conversation.

⁶⁹ *Op. cit.*, 203; *Principles*, ii, 473 f. (very slightly changed).

purpose; time and time again, when one is skimming a book in this way, it is positively annoying to be challenged by a remark, foreign to the interest of the moment, which insists on being noted down for later consideration. Since James was a highly trained reader, with manifold interests, he of all men would not have read blindly and narrowly. And, indeed, when I reflect upon his medical training, his personal relations with France, his wide acquaintance with French scientific writing, the general scope of his erudition, the indefatigable thoroughness with which he pursued a subject that he deemed worthy of attention, his high ideals of scientific procedure,—when I reflect upon all this, and place over against it the array of authorities cited in this paper, then the “fragmentary introspective observations” of the article in *Mind* leave me fairly puzzled; and when I think of his open-hearted recognition of Lange, I wonder all the more that he ignored Lange’s references to the past. I have already suggested that, as the theory shot to a focus in James’ thought, it carried with it a blaze of illumination; here, at long last, was something other than the classical descriptions and the endless classifications! But then, again, the mature scholar has learned by repeated experience not to take these illuminative moments at their face value,—has learned to doubt his originality and to question his inspirations. All in all, James’ acceptance of the complete novelty of his theory must, I believe, be left to stand as something of a curiosity in the history of psychology.

APPENDIX

The following list shows the principal authors from whom I have quoted. The books are arranged, so far as I am able to place them, in chronological order. Many of them, of course, went through several editions.

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| Malebranche (1638-1715), <i>De la recherche de la verité</i> , | 1674-5 |
| La Mettrie (1709-1751), <i>Histoire naturelle de l'âme</i> , | 1745 |
| <i>L'homme machine</i> , | 1748 |
| Buffon (1707-1788), <i>Histoire naturelle</i> , etc., | between 1754 and 1767 |
| Boccalosi, <i>Della fisionomia</i> , etc., | before 1797 |
| Cabanis (1757-1808), <i>Rapports du physique et du moral</i> , etc., | 1798-9—1802 |
| Bichat (1771-1802), <i>Recherches physiologiques</i> , etc., | 1800 |
| Tracy (1754-1836), <i>Elémens d'idéologie</i> , etc., | 1801 |
| Lamarck (1744-1829), <i>Philosophie zoologique</i> , | 1809 |
| Blaud, <i>Physiologie philosophique</i> , | 1830 |
| Dufour, <i>Essai sur l'étude de l'homme</i> , | 1833 |
| Lotze (1817-1881), <i>Seele und Seelenleben</i> , | 1846 |
| <i>Medicinische Psychologie</i> , etc., | 1852 |

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| Nasse (1777-1851), ? | before 1849 |
| Domrich, <i>Die psychischen Zustände</i> , etc., | 1849 |
| Béraud, <i>Physiologie de l'homme</i> , | 1853 |
| Volkmann (1821-1877), <i>Lehrbuch der Psychologie</i> , etc., | 1856 |
| Lange (1828-1875), <i>Geschichte des Materialismus</i> , etc., | 1866 |
| Maudsley (1835), <i>Physiology and Pathology of Mind</i> , | 1867 |
| Henle (1809-1885), <i>Anthropologische Vorträge</i> , | 1876 |